

**ABSTRACT OF THE DISCLOSURE**

An x-ray tube has a stationary vacuum housing, in which are arranged an electron-emitting cathode and a ring anode with an impact surface on which the electron beam, accelerated by an electrical field, is incident, as well as a deflection system to focus and deflect the electron beam. The ray exit window of the x-ray tube is round, lies in the plane perpendicular to the central axis of the x-ray tube, and terminates one side at the vacuum housing. The impact surface of the ring anode is beveled and is aligned to the ray exit window. A diaphragm is provided in front of the ray exit window that defines a circular opening for the x-ray radiation. The ring anode is surrounded by an annular anode cooling arrangement.

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